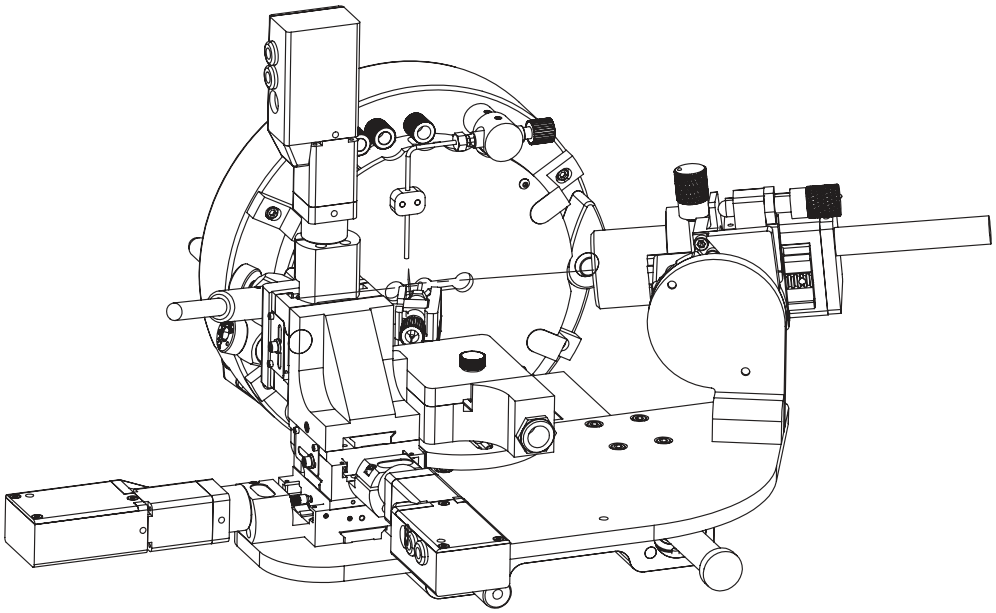
DIGITAL PICOVIEW®
NANOSPRAY SOURCES

QUICK START INSTALLATION



Digital PicoView® 450

Nanospray Ion Source
For AB SCIEX Mass Spectrometers
4000, 4500, 4600, 5500, and 5600

NEW OBJECTIVE

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Read This First

Safety Considerations

WARNING: Electrospray ionization involves the use of potentially lethal high-voltage electrical current. Observe all manufacturers' safety recommendations in the use of such equipment. No equipment modifications should be made except by trained personnel using methods approved by the manufacturer in accordance with all safety requirements. Installation of equipment should be performed by qualified personnel in accordance with all applicable electrical codes.

Never use this product with defective, damaged, or faulty equipment. Serious injury or death could result.

SAFETY PRECAUTIONS: Only qualified personnel should use this product. Provide a safe workplace equipped with all necessary safety equipment.

Prior to Installation

Follow all safety recommendations of the equipment manufacturer(s). All system voltages must be brought to ground potential and all high-voltage contacts disconnected from the inlet system before installation of the PicoView® system.

Inspect all equipment carefully prior to use. Any damaged, chipped, or cracked components should not be used and must be discarded or repaired.

Handling Fused-Silica Tubing

Handling of fused-silica or glass tubing and tips can result in serious personal injury, including eye and skin injury. Use safety glasses or goggles meeting ANSI Z87.1-1989 requirements, or the equivalent. Puncture- and chemical-resistant gloves should also be worn at all times.

Tip Adjustment and/or Replacement

Do not attempt to adjust or replace the tip unless the ESI high voltage and other applicable voltages are turned off and are at ground potential.

Reduce any applicable backing pressure (liquid, gas, etc.) to ambient before loosening ESI tip fittings and removing the fused-silica tip or transfer line from the coupling union. Prior to pressurization, make sure that components are tightened to specifications to prevent separation during use. Failure to adhere to this warning could result in projectile-like expulsion of the tip from the coupling union, which could cause serious personal injury or damage to surrounding apparatus.

The Transfer Line

The transfer line connecting to either a tip module or the Micro Injection Valve must not be made from an electrically conductive material. It must be fabricated from an electrically insulating material such as PEEK™ or fused silica. Otherwise, the operator may be exposed to potentially lethal voltage.

In systems where high voltage is applied directly to the ESI tip, the liquid sample inside the tip and transfer line tubing is also raised to a high voltage. To prevent exposure to potentially lethal voltages, a suitable ground point for the liquid inside the line must be provided.

WARNING: Do not defeat any mass spectrometer system software or hardware safety interlocks.

Trademarks

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Limited Warranty

DISCLAIMER

Technical information contained in this publication is for reference purposes only and is subject to change without notice. The information is believed to be reliable and accurate; however, nothing set forth herein constitutes a warranty of any kind or nature. Given the variety of experimental conditions, New Objective, Inc., cannot guarantee performance at a given flow rate; the best guide to tip selection and operation is empirical testing.

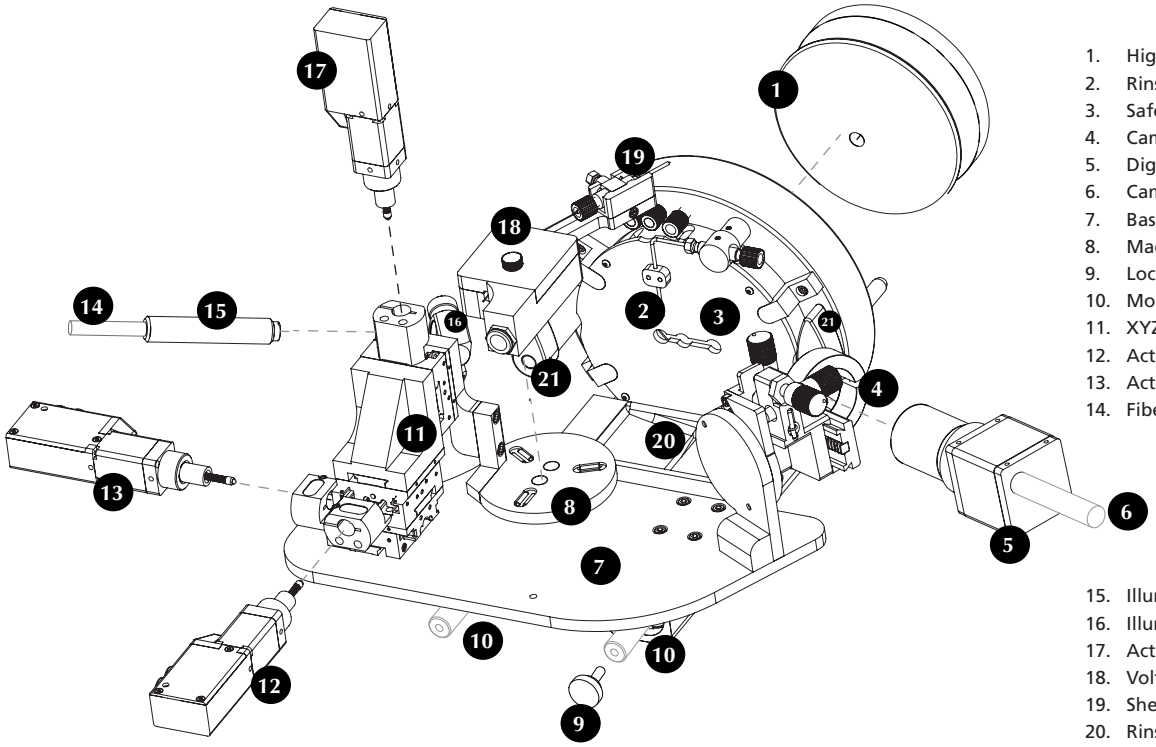
The user is solely responsible for complying with any patent(s) pertaining to applications or methods using the products described or mentioned in this manual.

New Objective, Inc., warrants this Product (Digital PicoView®) to be free of defects in materials and workmanship for a period of one (1) year from the date of shipment. Any item believed to be defective within the meaning of the foregoing sentence shall be returned to New Objective, Inc., and, if found by us to be defective, shall be repaired or replaced with conforming Product of like kind. Please note that a Return Merchandise Authorization Number (RMA) will be required. New Objective, Inc., will pay return freight on unsatisfactory items. New Objective, Inc., shall have no other liability or obligation with respect to goods alleged to be defective. The foregoing shall constitute the sole and exclusive remedy, and New Objective, Inc.'s total liability for any and all losses and damages arising out of any cause whatsoever (whether such cause be based in contract, negligence, strict liability, other tort, or otherwise) shall in no event exceed the purchase price of the Product(s) in respect of which the cause rose. New Objective, Inc., disclaims, and shall not be liable, in any event, for loss of profits, consequential or incidental damages, or punitive or exemplary damages in connection with the Product furnished hereunder.

The foregoing limited warranty (i) shall be void as to any item of Product which is in any material respect altered by the user; (ii) does not cover misuse of the Product (for example, but not limited to, dropping or other mishandling of any components of PicoView, improper trimming of SilicaTips™, PicoFrit® Columns, or TaperTips™, damage caused by application of or exposure to excessive temperature, pressure, or voltage) or SilicaTip, PicoFrit, or TaperTip failure by reason of clogging; and (iii) does not cover standard consumable items supplied with PicoView such as, but not limited to, microtees, unions, tubing sleeves, fittings, etc.

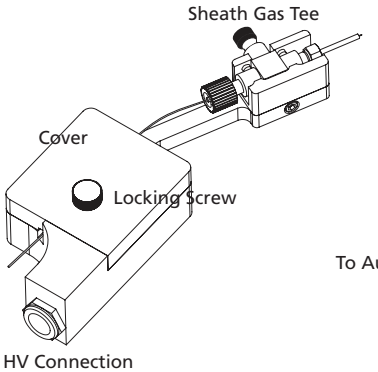
The digital camera is also warranted to be free from defects in material or workmanship for a period of one (1) year from the date of purchase.

Overview of Components

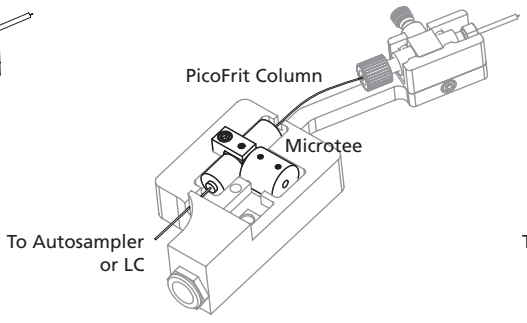


1. High-Contrast Curtain Plate
2. Rinsing Station
3. Safety Shield
4. Camera Mounting Ring
5. Digital Camera
6. Camera USB Cable
7. Base Plate
8. Magnetic Stage Plate
9. Lock Bolt
10. Mounting Rails
11. XYZ Stage
12. Actuator Y
13. Actuator X
14. Fiber Optic Cable
15. Illuminator
16. Illuminator Mount
17. Actuator Z
18. Voltage Module
19. Sheath Gas Module
20. Rinse Basin
21. Locking Levers

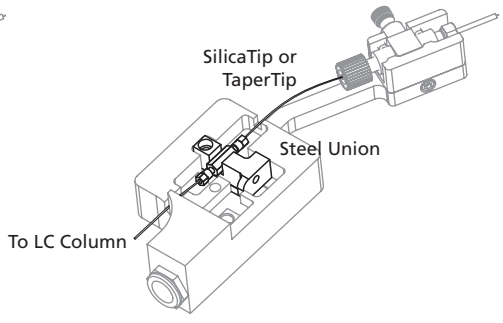
Voltage Module Configurations



Voltage Module



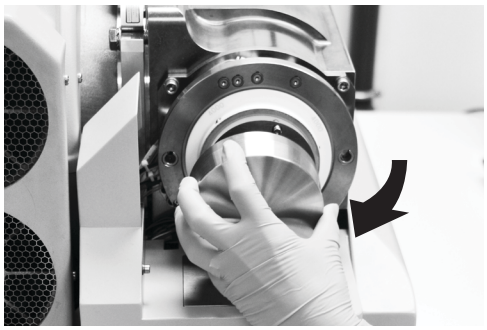
Setup for use with standard microtee
(P/N MICT-PV is shipped in the accessories kit)
Shown with cover removed



Setup for use with standard steel union
(P/N C360US62PKG-NO is shipped in the accessories kit) Shown with cover removed

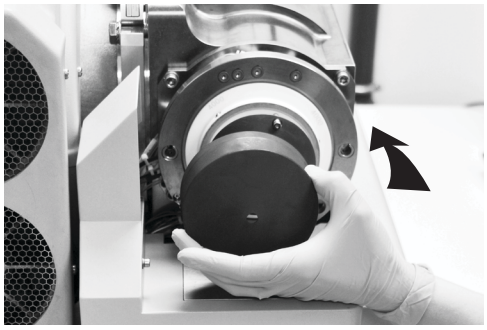
The process for problem-free installation of the DPV-450 follows. For detailed information, please refer to the complete user manual.

Section 1: Hardware Installation



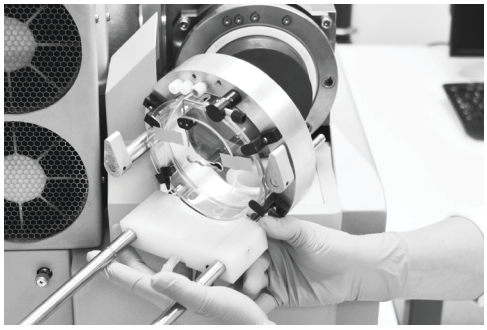
STEP 1

Prepare instrument for DPV-450 istallation by removing standard curtain plate from the nanospray interface



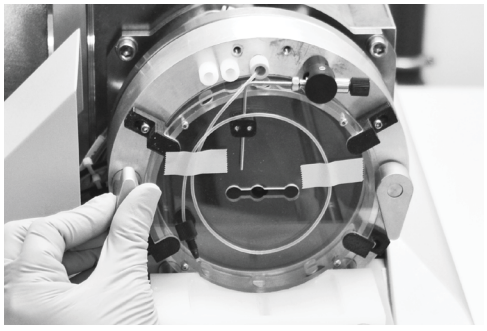
STEP 2

Install high-contrast DPV-450 curtain plate onto nanospray interface



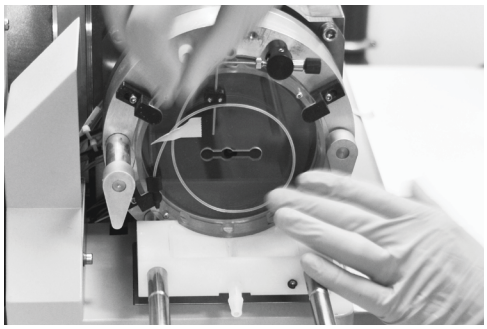
STEP 3

Install DPV-450 source ring onto nanospray interface. Align mounting pins on instrument with recessed features on DPV-450 and press source ring flush against instrument panel.



STEP 4

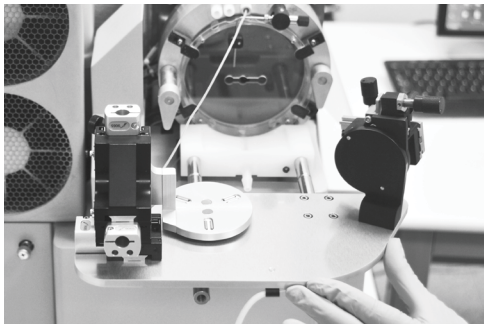
Rotate locking levers 180° (down) to lock source ring onto interface



STEP 5

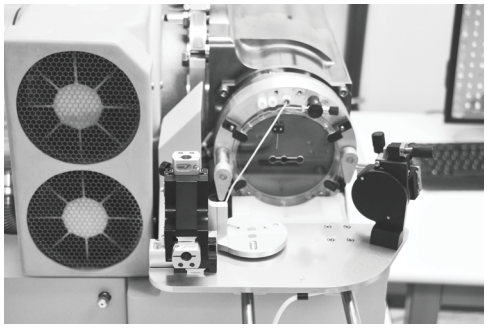
Remove blue tape to release nebulization gas tubing

Note: Tubing may be taped or twist-tied.



STEP 6

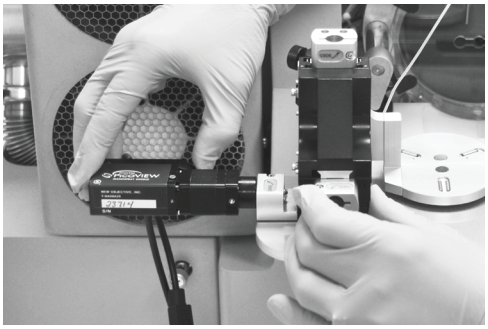
Install DPV-450 source body onto rails and slide forward



DPV-450 positioned as far forward as possible

STEP 7

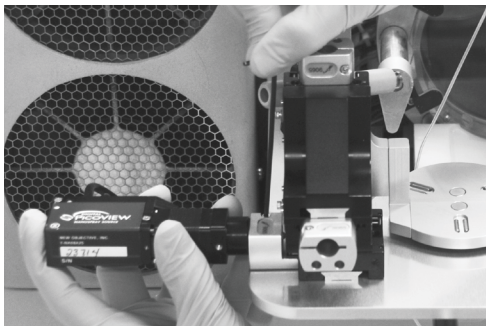
Install locking nut (found in the accessories box) into right-side rail. No locking nut in the left rail is necessary.



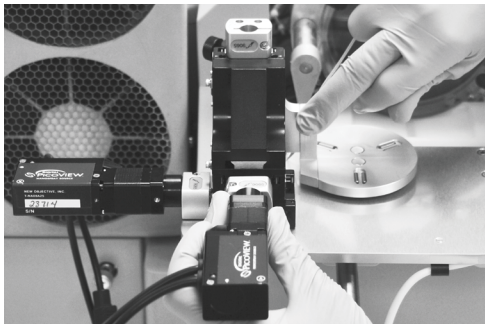
STEP 8

Install stage actuation motors

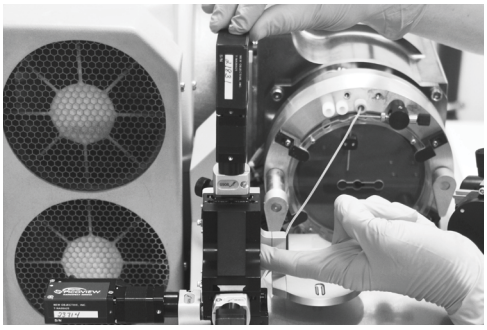
Gently pull the XYZ stage towards center of source and insert motor labeled “X” into the “X” stage port.



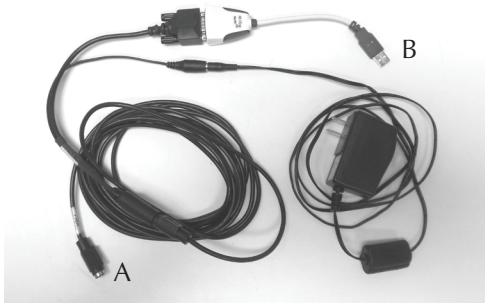
Tighten set screw on stage port using a 2mm hex wrench (provided).



Repeat process for “Y” actuator, gently pushing the XYZ stage forward to insert the actuator into the stage port. Tighten using the 2mm hex wrench (provided).



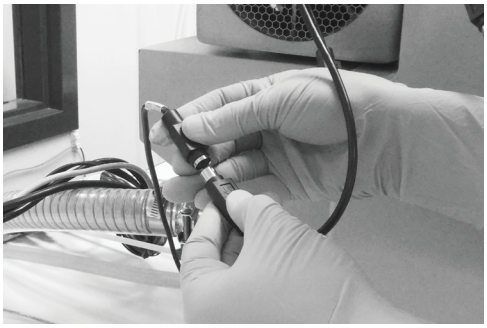
Repeat process for “Z” actuator, gently lifting the XYZ stage up to insert the actuator into the stage port. Tighten using the 2mm hex wrench (provided).



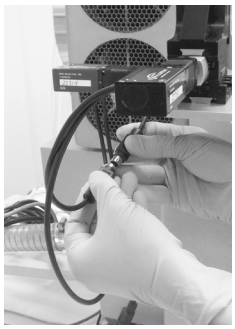
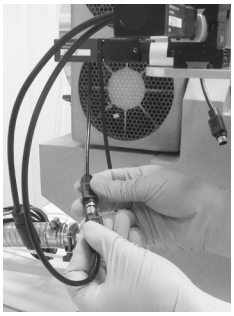
STEP 9

Connect actuation motors. The order in which the motors are connected to each other is very important.

Locate the actuator coupling cable, a 15′-long, split-end cable that supplies power and transfers data to and from the motors.

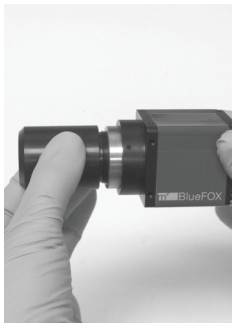


Connect male cable on X-axis motor to female cable (A, above left) that will connect to USB port of host PC (B, above left). DO NOT connect to host PC at this time

Connect female cable on X-axis motor to male cable on Y-axis motor

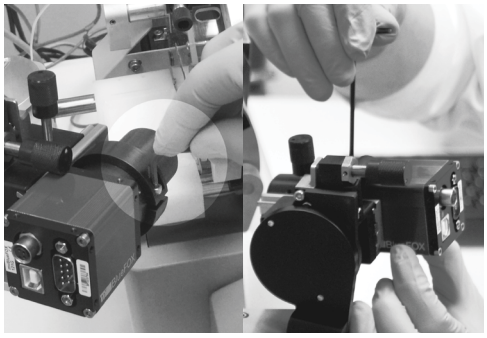
Connect female cable on Y-axis motor to male cable on Z-axis motor. Note that the second coble on the Z-axis motor should be left unconnected.



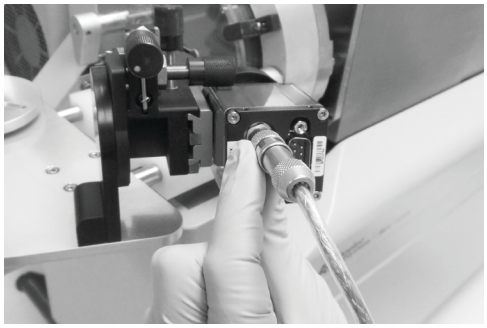
STEP 10

Install Visualization System

Locate lens tube in the accessories box. Screw the tube onto the front of the digital camera and install camera into the mounting ring, following orientation as shown.



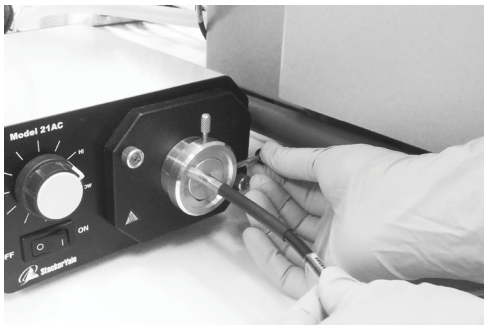
Tighten set screw using 2.5mm hex wrench (provided) to secure camera in place



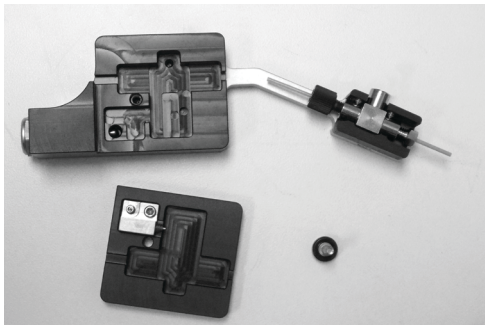
Install USB camera cable into camera.

DO NOT connect cable to PC at this time.

Insert fiber optic coupler into the illuminator mount and tighten thumb screw to secure.



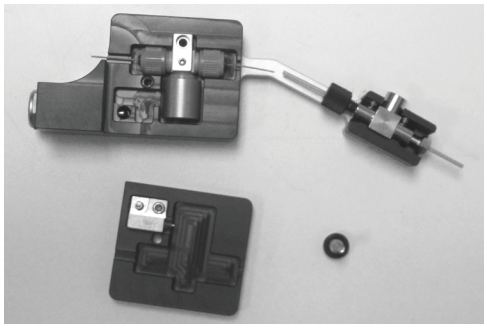
Connect fiber optic cable to adapter ring on illuminator and tighten set screw



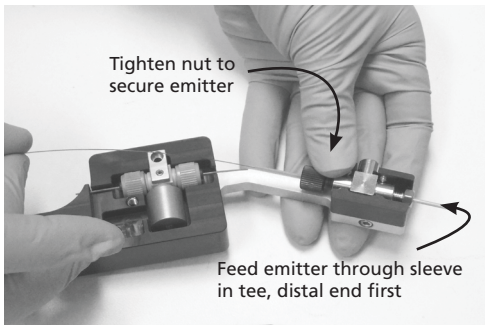
STEP 11

Plumbing Voltage Module

Remove lid by loosening thumb screw

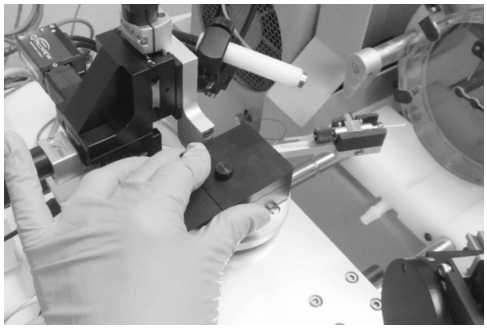


Insert microtee (located in the accessories box) into recess in base, as shown



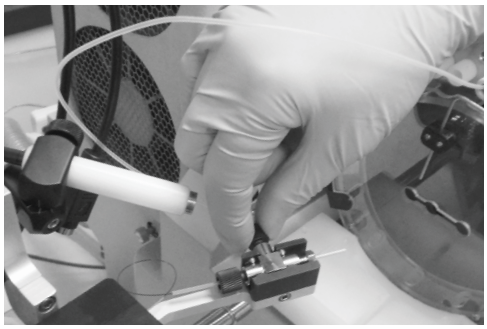
Feed emitter through the front of the sheath gas tee DISTAL END FIRST. Pull through. Tighten nut on sheath tee to secure emitter in place.

Plumb distal end of emitter and transfer line into microtee (or steel union) and install lid. Refer to user manual for detailed information on plumbing microtee and steel union.

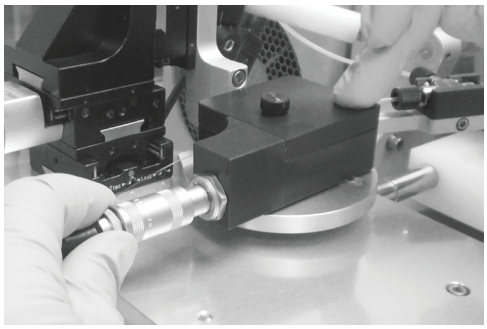


STEP 12

Slide stage away from the inlet and place plumbed voltage module onto magnetic plate of the XYZ stage



Connect tubing for nebulization gas into gas tee



Connect voltage cable to voltage module

Section 2: Software Installation

NOTE: Software from the Digital PicoView® Installation USB thumb drive should be installed and the host PC rebooted prior to making the USB connections between the Digital PicoView camera, XYZ actuators, and host PC.

1. Locate the Digital PicoView Software Installation USB thumb drive.
2. Insert the USB thumb drive into an available USB 2.0 port on the host PC.
3. Open the folder titled 'CD Template DPV450 v2.0.4' for 32-bit operating systems or 'CD Template 64 bit DPV450 v2.0.4' for 64-bit operating systems.
4. Launch CDStarter.exe
5. Accept the dialog box by clicking YES. The start-up window appears.
6. Click "1-USB to Serial Install" to install the USB-to-serial converter driver. Follow the default installation instructions.
7. Click "2-Camera Install" to install the camera drivers. Follow the default installation instructions.
8. Click "3-PV Configure Install" to install the PV Configure application. Follow the default installation instructions.
9. Click "4-PV Acquire Install" to install the PV Acquire application and National Instruments™ Run-Time Engine. Follow the default installation instructions.
10. Restart/re-boot the host PC.

NOTE: The host PC must be rebooted to complete software installation. **Do not connect the USB cables from Digital PicoView hardware prior to rebooting, as this will cause software failure.**

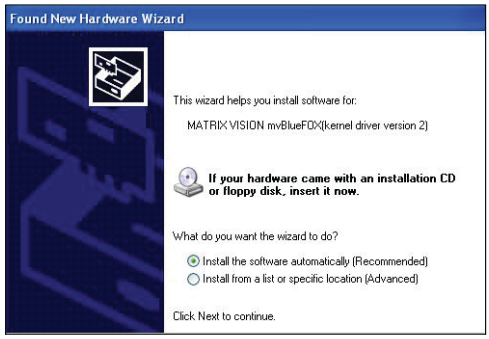
11. Two Digital PicoView applications have been installed in the Windows® START menu: “Digital PicoView > PV450 Acquire 2_0_4” and “Digital PicoView > PV Configure”.

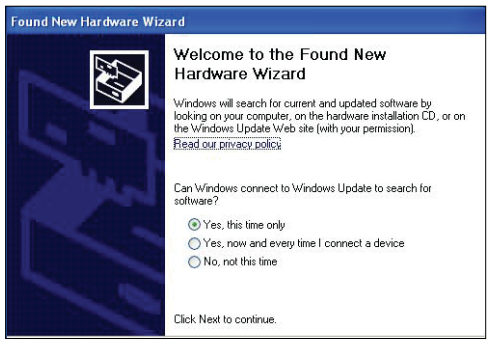
12. Additional Installation Notes are available on the New Objective USB thumb drive, follow these directions should the cdstarter.exe application fail to run.

Section 3: System Initialization

STEP 1

Connecting the USB cables


Found New Hardware Wizard
This wizard helps you install software for:
MATRIX VISION nvBlueFOX(kernel driver version 2)
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.


Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
Windows will search for current and updated software by looking on your computer, on the hardware installation CD, or on the Windows Update Web site (with your permission).
Read our privacy policy
Can Windows connect to Windows Update to search for software?
Yes, this time only
Yes, now and every time I connect a device
No, not this time
Click Next to continue.

NOTE: Prior to using PV Acquire, the USB connections between the host PC and Digital PicoView source need to be established. This will be followed by the creation of a default configuration file using the PV Configure application.

1. Connect the USB cable from the digital camera to the host PC. Follow onscreen instructions to activate USB driver (if required).

2. Connect the USB cable from the USB-to-serial converter (XYZ stage actuators) to the host PC. Connect the 5V power supply to wall power outlet. Follow onscreen instructions to activate USB driver (if required).

STEP 2

Setting a Port Assignment for USB-to-Serial Adapter

NOTE: The USB-to-serial adapter will be assigned a virtual COM port number by the operating system. This number needs to be determined and is used by the PV Configure application to establish a default settings file for PV Acquire.

1. Open the Windows Device Manager. In Windows XP this is typically found under: Start > Control Panel (classic view) > System > Hardware Tab (See Figure)

2. Click on the Device Manager button

3. The Device Manager List will open. Click on Ports (COM & LPT). Look for USB-to-Serial Com Port in the sub-list.

4. Note the COM port setting (e.g. COM3, COM4, etc.) that will be seen in parenthesis (this assignment will be needed when running PV Configure for the first time)

System Properties
System Restore
Automatic Updates
Remote
General
Computer Name
Hardware
Advanced
Device Manager
The Device Manager lists all the hardware devices installed on your computer. Use the Device Manager to change the properties of any device.
Device Manager
Drivers
Driver Signing lets you make sure that installed drivers are compatible with Windows. Windows Update lets you set up how Windows connects to Windows Update for drivers.
Driver Signing
Windows Update
Hardware Profiles
Hardware profiles provide a way for you to set up and store different hardware configurations.
Hardware Profiles
OK
Cancel
Apply

Creating a Configuration Settings File

1. Select PV Configure from the Windows START menu under the Digital PicoView heading. A dialog box asking you to select the proper COM port will pop up.

2. Select the COM port number from the pull down menu selection as reported by the Device Manager.

3. The main PV Configure dialog window is now available

Click Save to save the settings file. A standard dialog window will open. The file may be saved under any name, to any user-selected directory.

Note the file location and file name. Click the OK button to save the file. The PV Configure window will close automatically.

PV Acquire Start-up

NOTE: PV Acquire requires user input of the location of the Configuration File each time it is started.

4. Choose PV Acquire from the Start menu under the Digital PicoView heading.
5. A dialog window asking for the location and name of the Configuration File created in the previous section will appear. Choose the File and click OK.
6. A second dialog window will open asking if the XYZ stage requires a Home Stage operation. Select 'Yes'.

   Once the stage is fully initialized and PV Acquire has established communication with the XYZ stage motors, a confirmation dialog window will appear.
7. Click OK in the message box to begin using PV Acquire.

Refer to the DPV-450 User Manuals for complete instruction on use.

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